



**Report of the
Second FAO/OIE Regional Meeting on
Avian Influenza control in Asia**

**23-25 February 2005
Ho Chi Minh City
Viet Nam**

In collaboration with:

Government of Viet Nam (Ministry of Agriculture and Rural Development)
and World Health Organization



**Second FAO/OIE Regional Meeting on
Avian Influenza control in Asia
23-25 February 2005 Ho Chi Minh City, Viet Nam**

Organisers: FAO, OIE, Government of Viet Nam (MARD) in collaboration with WHO

Sponsors: FAO, OIE and Government of Viet Nam (MARD)

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A – PROGRAMME

Wednesday, 23 February 2005

08:30 Registration

Opening Session

09:00 – 10:15

Chair: A. Rychener (FAO)

Rapporteur: Guo Fusheng (FAO)

- Opening address by HE Mr. Cao Duc Phat, Minister, MARD
- Address by Mr. Nguyen Thien Nhan, Vice-Chairman of the People's Committee of Ho Chi Minh City
- Address by WHO: Dr. S. Omi, Regional Director, WHO Regional Office for Western Pacific
- Address by OIE: Dr. T. Fujita, OIE Regional Representative for Asia and the Pacific
- Address by FAO: Dr. S. Jutzi, Director, AGA, FAO
- Address by HE Dr. Tran Chi Liem, Vice-Minister, Ministry of Health

10:15 Coffee break / media interviews

Session I: Current AI situation in the region

10:45 – 11:25

Chair: T. Fujita (OIE)

Rapporteur: H. Wagner (FAO)

- | | |
|--|--------------------------------|
| – Country Report – Viet Nam | Dr. To Long Thanh,
Viet Nam |
| – Summary of the Situation in Asia FAO/OIE | Dr. D. Sibartie, OIE |
| – FAO Electronic conference on avian influenza control | Dr. S. Kahn, FAO |

Session II Review of recommendations of first HPAI Regional Meeting and global activities of International Organizations in 2004

11:25 – 13:15

Chair: R. Abila (OIE-ASEAN)

Rapporteur: W. Kalpravidh (FAO)

- | | |
|---|------------------------|
| – Follow-up recommendations of the First HPAI Regional Meeting by countries in the region | Dr. M. Nunn, Australia |
| – FAO activities and results | Dr. J. Domenech, FAO |
| – FAO Recommendations on the Prevention, Control | Dr. L. Sims, FAO |

- and Eradication of HPAI in Asia
- OIE Standards on Avian Influenza (AI) – Proposed standards for international trade and surveillance guidelines Dr. D. Sibartie, OIE
- OIE Guidelines for humane killing of animals and for carcass disposal Dr. F. Pluimers, OIE
- WHO activities and results Dr. H. Oshitani, WHO

13:15 – 14:00 Lunch

14:00 **Field Visit**

18:00 Official Reception offered by the Government of Viet Nam

Thursday, 24 February 2005

Session III: Scientific Advances on Avian Influenza - animal health and socio-economic analysis

08:30 – 10:30

Chair: D. Sibartie (OIE)

Rapporteur: L. Sims (Australia)

Animal health

- HPAI Epidemiology and risk factors in Viet Nam Dr. Nguyen Tien Dzung, Viet Nam
- FAO/DLD Analysis of second wave outbreaks of HPAI in Thailand Dr. Prasit Chaitaweesub, Thailand
- Analysis of recent scientific research findings, including molecular epidemiology, vaccines Dr. I. Brown, UK
- Epidemiologic hypotheses and risk factors Dr. V. Martin, FAO
- H5N1 Avian Influenza – why did it happen? Dr. R. Morris, NZ
- Food safety Dr. D. Swayne, USA
- Situation in China, including use of avian influenza vaccine Dr. Yanbing Li, China

10:30 coffee break

11:00 – 10:15

Chair: F. Guerrieri (FAO)

Rapporteur: D. Swayne (USA)

Socio-economic analysis and rehabilitation

- Long term control of HPAI: social, economic and policy issues Dr. A. McLeod, FAO
- Rehabilitation and restructuring Dr. F. Dolberg, FAO

12:00 – 12:30

Chair: T. Fujita (OIE)
Rapporteur: J. Lubroth (FAO)

Public health issues

- Situation in Viet Nam
- Interagency collaboration on animal production/marketing and prevention of emerging zoonoses in Asia
- Difficulties in influenza A control

Dr. P. Horby, WHO
Dr. A. Hazzard, WHO
Dr. Nguyen Van Binh,
Viet Nam

12:30 – 13:45

Lunch

Session IV: Working Groups – Breakout Sessions

13:45 Group discussion

19:00 Official reception offered by FAO and OIE

Friday, 25 February 2005

Session IV: Working Groups - Reports and recommendations on future needs

08:30 – 10:30

Chair: J. Anelli (USA)
Rapporteur: M. Nunn (Australia)

- Surveillance, Prevention and Control
- Diagnosis and vaccination
- Economic and policy issues/rehabilitation and restructuring
- International standards and trade, and regional and international cooperation
- Human health

Dr. V. Martin, FAO
Dr. S. Kahn, FAO
Dr. A. McLeod, FAO
Dr. D. Sibartie, OIE
Dr. F. X. Meslin, WHO

10:30

coffee break

Session VI: Views of donors on HPAI prevention, control and eradication

11:00 – 13:00

Chair: S. Jutzi (FAO)
Rapporteur: T. Fujita (OIE)

Views of regional and international organizations and donor agencies

- ASEAN
- SAARC
- ADB
- European Union
- World Bank

Dr. R. Soerakoesoemah
 Dr. M. Naseer
 Dr V. de Wit
 Dr. H. Batho
 Dr. M. Pittman
 Dr. L. Msellati

Views of donor countries

- Australia
- Japan
- New Zealand
- The Netherlands
- USA

Dr. M. Nunn
 Dr. H. Kamakawa
 Dr. D. Belton
 Dr. Peter W. de Leeuw
 Mr. R. McSherry

13:00 Lunch / Media conference

Session VII: Conclusions and Recommendations

Chair: J. Domenech (FAO)
Rapporteur: D. Sibartie (OIE)

14:00 – 15:00

FAO/OIE joint presentation

15:00 coffee break

15:30 – 16:30

Presentation and adoption by the meeting

Closing Session

16:30

- FAO
- OIE
- The representative of the Participants
- Closing of the meeting: Government of Viet Nam

Dr. S Jutzi
 Dr. T. Fujita
 Dr. J. Q. Molina
 HE Mr. Cao Duc Phat

B – EXECUTIVE SUMMARY

The Second FAO/OIE Regional Meeting on Avian Influenza Control in Asia was held in Ho Chi Minh City, Viet Nam, on 23-25 February 2005. The meeting was attended by over 155 delegates from 30 countries and regional organizations of Asia, multilateral and bilateral donor organizations and countries, scientific experts, representatives of international and national technical and scientific institutions, including FAO, OIE and WHO, and representatives of the private sector including vaccine producing companies.

The objectives of the Meeting were to assess the current avian influenza (AI) situation; to evaluate the achievements of control measures implemented in the past 12 months; to review recent scientific advances in the understanding of avian influenza; and to advise on new control measures if warranted and to identify future research needs.

Participants heard several excellent presentations on scientific, veterinary, economic and policy issues relating to the avian influenza epidemic that started in Asia during late 2003 and continues with cases in poultry and the human population in several countries. It was generally agreed that countries in the region have made good progress in managing the epidemic. Japan, the Republic of Korea and Malaysia have reported success in eliminating H5N1 avian influenza. Other countries, with support of FAO, OIE and the international community, have significantly improved their capacity for early disease detection and rapid response. However, there is still much room for improvement in data analysis, coordination, surveillance and control. In this regards, the meeting also recognised the need for enhanced international and regional cooperation, and establishment of sustainable regional networks on avian influenza. FAO/OIE/WHO have pledged to continue supporting these activities with scientific and technical advice for control strategy preparation at national, regional and international levels and implementation of control and prevention programmes. Financial support will be needed from the international community and governments to strengthen the veterinary services. The meeting also acknowledged that the trade in livestock and livestock products in the region must follow OIE guidelines.

As the epidemic has evolved and scientific understanding of avian influenza increased, it has become clear that H5N1 avian influenza viruses are now established in several countries of Asia, persisting in farmed and wild waterfowl, particularly ducks, and in the multiple avian species found in live bird markets. The role of ducks as a reservoir of infection, causing persistence and spread of avian influenza is well recognised.

While the origins of the H5N1 epidemic remain unclear, it is known that poultry production and marketing practices in some countries support virus persistence. While wild birds likely play a role in spread of H5N1 viruses, dissemination via the movements of live poultry and their products, particularly through live bird markets, appear to be more influential and are the most important targets for control measures. FAO/OIE/WHO recommend against the destruction of wild birds and their habitat as this is inappropriate on conservation grounds and unlikely to significantly assist in disease control.

Studies have shown that the H5N1 viruses are continually evolving and may potentially cause more serious disease in mammals, including man – heightening concerns about a potential global pandemic of human influenza.

The elimination of avian influenza is an important long term goal, which will require countries to implement much stricter controls on the production and marketing of poultry. Poultry production and marketing systems may need to be restructured and this could have significant economic and social impact in some countries. Options for restructuring should be investigated and impact assessment of proposed AI prevention and control programmes should form part of the animal health planning process in all concerned countries. Regardless of other measures adopted, protection of human health and elimination of avian influenza will depend upon improved biosecurity.

In the short-to-medium term, infected countries must implement measures to reduce the excretion of virus, limit spread between poultry, and prevent exposure of humans to infection. Properly used, avian influenza vaccines can play a useful role. However, vaccines must be applied as part of an overall strategy employing quarantine and movement control, stamping out of infected birds, biosecure disposal of carcasses and infective material, cleaning and disinfection of infected premises and restocking under conditions that will prevent recrudescence of avian influenza infection. The recommendations and standards established by FAO and OIE must be strictly followed when designing and implementing a vaccination strategy.

In the case of avian influenza incursions into countries that have historically enjoyed freedom, veterinary authorities should focus on stamping out the disease and not implement a policy of routine vaccination for purposes of prevention and control.

Scientific research and development is urgently needed to give countries better tools for detection and control of avian influenza. Serological tests and vaccines for waterfowl, especially ducks, must urgently be validated. The development of cheaper, more effective and practical vaccines and diagnostic tests for chickens is also a priority. Epidemiology research must be continued and a research agenda should be defined.

Finally, a global master coordinated plan at the international, regional, sub regional and national levels has to be prepared, with a proper road map and timetable, to be endorsed by the international and regional organizations as well as by the national governments.

Seven recommendations, including a general declaration of the meeting for more investment in controlling AI, were adopted which cover the above described issues.

C – RECOMMENDATIONS

RECOMMENDATION No. 1

The Ho Chi Minh City Declaration on Investments

Considering:

1. The continuing circulation of avian influenza viruses in poultry in several Asian countries associated with disease outbreaks in poultry and human infection and fatalities;
2. The concern about the potential for a pandemic of human influenza;
3. That highly pathogenic avian influenza (HPAI) viruses seem to be endemic in several countries in Asia and that eradication does not appear to be feasible in the short term;
4. The availability of effective and practical procedures for detection and surveillance of AI viruses in domestic poultry and wild birds;
5. The availability of effective and practical measures (e.g. stamping-out, biosecurity, movement controls, vaccination) to control these viruses;
6. That Regional animal health diagnostic and epidemiology networks are incipient and lack sufficient depth, resources and continuity to ensure timely and transparent detection, diagnosis and reporting;
7. That animal health infrastructures in many countries of the region are under-resourced and lack the capacity for an effective response to the HPAI epidemic in poultry;
8. The necessity that countries in the region that are currently free of HPAI receive the investment needed to ensure that they remain free;
9. That improvements in the capacity of countries to detect, confirm and manage HPAI in poultry will also improve their capacity with respect to other emerging zoonoses;
10. That resources for animal health are far from sufficient to mitigate the serious damage caused by AI viruses to animal health and production and human health;
11. The needs for a global short, medium and long-term plan for the control and ultimate eradication of AI.

The meeting recommends that:

1. Governments give increased priority and profile to build the capacity of animal and human health services and other necessary services to ensure they can exercise their responsibilities with respect to AI and other zoonoses;

2. A master coordination plan be prepared with a global vision defining the road map and time frames for the short, medium and long-term priority activities, to be endorsed and supported by individual countries and regional organisations;
3. Long-term, sustainable funding be sought to support key priorities identified in the outcome of this meeting;
4. The investment required to support key priorities, identified during this meeting, for AI control in animals in countries currently infected and in countries that are currently free from the disease be in the order of:
 - international: \$1 million per year (ongoing)
 - regional: \$3 million per year (ongoing)
 - national: \$100 million (total) over a 3-5 year period.

[noting that these estimates do not include the potentially significant costs associated with either compensation or major industry restructuring] .

RECOMMENDATION No. 2

International standards and surveillance for international trade

Considering:

1. The importance and regional and international dimension of the AI crisis affecting animals and the potential public health implications;
2. The negative trade impacts that AI has had on international trade;
3. That the OIE has proposed new standards and guidelines on AI with respect to international trade, which will be proposed for adoption in May 2005 during the OIE General Session;
4. That the concept of compartmentalisation has already been agreed by the OIE International Committee.

The meeting recommends that:

1. The OIE promulgate a policy paper explaining the specific requirements of implementation of compartmentalisation with respect to AI;
2. The OIE develop agreed methods of AI virus inactivation in processed products with respect to animal health, international trade and food safety issues;
3. International (such as FAO/OIE) and Regional bodies (such as ASEAN and SAARC) continue to provide assistance to further strengthen countries' compliance with international standards.

RECOMMENDATION No. 3

National/Regional/International co-ordination and co-operation

Considering:

1. That AI is a transboundary disease which easily spreads between countries and has important regional and international dimensions;
2. That national control strategies should be harmonised and co-ordinated;
3. The mandates and missions of international and regional organisations;
4. The necessity to continue and sustain the regional networks that have been established as an emergency response to the AI crisis by the FAO and other bodies.

The meeting recommends that:

1. The development of AI control and eradication regional plans in Asia be coordinated and monitored through ASEAN/ASEAN +3 and SAARC;
2. AI control and eradication national plans be developed (based on the regional coordinated plan) in a transparent manner and be well documented with a road map including time-frames;
3. Member countries build on the Southeast Asia Foot and Mouth Disease (SEAFMD) model to help strengthen regional co-operation and enhance national efforts to control and eradicate HPAI;
4. The international and regional organisations continue and further strengthen their activities in support of member countries;
5. The existing FAO regional networks for surveillance and diagnosis be sustained with additional support;
6. The FAO/OIE Global Framework for Transboundary Animal Diseases (GF-TADs) initiatives be used as a foundation for the regional approach to the control and eradication of AI.

RECOMMENDATION No. 4

Strategies for surveillance and control of avian influenza

Considering:

1. The importance and the regional and international dimensions of the AI crisis affecting animals and the potential public health implications;
2. The necessity to stop the cycle of infection within identified reservoirs and prevent spill over into other susceptible animal species and man;
3. The need to prevent the spread of AI virus to unaffected countries.

The meeting recommends that:

1. Countries plan control strategy based on scientifically designed risk analysis and surveillance surveys that identify reservoir species, agro-ecological areas and farming systems likely to maintain the infection;
2. The main risk infection pathways be mapped and appropriate and targeted surveillance strategies defined;
3. Disease be controlled at source through implementation of risk reduction interventions, including stamping out, vaccination, improved biosecurity and education awareness. In AI free countries, vaccination would not normally be considered for the purpose of prevention;
4. Vaccination in poultry, if applied in an appropriate manner can be used as an additional tool to protect human health and help towards the elimination of infection. However, vaccines should comply with OIE standards and vaccination strategies should be consistent with guidelines developed by FAO and supported by OIE;
5. That surveillance programmes be elaborated before vaccination is introduced. Likewise, an exit strategy has to be identified;
6. That Regional and International bodies provide assistance to countries in the region in capacity building;
7. That, wherever appropriate, diagnostic tests capable of differentiating infected from vaccinated (DIVA) birds be applied;
8. The efficacy of risk reduction and prevention procedures be monitored through targeted surveillance activities, including:
 - post vaccination surveillance to measure efficacy of vaccination, early identification of virus circulation, monitoring of genetic drift and emergence of new strains
 - monitoring reservoirs, including live bird markets
 - monitoring disease status of compartments or zones.

RECOMMENDATION No. 5

The implications of Highly Pathogenic Avian Influenza virus for human health

Considering that:

1. The occurrence and spread of avian influenza caused by highly pathogenic avian influenza virus in the region are linked with traditional animal production including backyard and subsistence poultry production, multiple animal species farming practices as well as live poultry marketing systems;
2. Recent research has confirmed that aquatic birds, especially ducks can act as reservoir of infection with or without clinical signs and are capable of excreting large amounts of viruses in the environment;
3. It is likely that most human cases were acquired from direct contacts with sick or dead poultry;
4. Available scientific evidence does not indicate that H5N1 transmission represents an occupational risk in industrial slaughterhouses;
5. There is no risk to human health from consumption of wholesome and properly cooked, or processed products, including eggs provided that good hygienic practices are applied in food preparations;
6. The true risk of infection or disease in humans is not well understood;
7. Vaccination alone is unlikely to lead to a successful eradication but vaccination combined with stamping out and adequate surveillance will more likely lead to eradication in less time provided that vaccines used are produced in accordance with OIE standards.

The meeting recommends that:

1. FAO, OIE and WHO develop guidelines for risk reduction along the whole length of the production and marketing chain for consideration at a joint technical consultation towards mid 2005. These guidelines should inter alia address:
 - identification of key risks especially for people working with animals
 - development of feasible risk management strategies at the interface between humans and animals particularly in farming systems where biosecurity is minimal and at live animal markets,
 - the issue of appropriate education and awareness messages and
 - the development of risk communication strategies taking account of local community risk perception;
2. HPAI suspect and clinically sick birds be humanely destroyed and disposed of along with dead poultry and not be allowed to enter the human food chain or be fed directly or indirectly to other animals including zoo animals;

3. Coordination of activities and financial resources between animal health authorities and those responsible for wildlife issues be encouraged for the early detection of possible animal and other zoonotic pathogens.

RECOMMENDATION No. 6

Research priorities for Avian Influenza

Considering:

1. The importance and regional and international dimensions of the AI crisis affecting animal and public health;
2. That research and development are urgently needed to obtain better tools to prevent, control and ultimately eliminate AI;
3. That the past 12 months have provided veterinary services, international agencies and donors a deeper understanding of the research priorities.

The meeting recommends that:

1. Specific research be conducted on AI surveillance and vaccination in ducks;
2. Further research be carried out under the aegis of OIE and FAO Reference Laboratories and private sector to develop diagnostic tests and vaccines to better address diagnostic and surveillance and control issues;
3. An expert consultation will be organised by FAO and OIE, in collaboration with WHO, to evaluate the results of research on new veterinary vaccines and their impact on risk reduction of disease in animals and humans;
4. Research be intensified on the role of wild and migratory birds in the epidemiology of AI;
5. Risk factors specific to each country be characterised to help refine disease control and eradication measures;
6. Research be carried out in small intensive farms and village poultry to better define risk management strategies, taking into account their economic viability and social acceptability;
7. Risk management strategies be identified for high risk bird populations such as fighting cocks, rare and endangered species;
8. A joint animal/public health/livelihoods risk assessment be conducted of the poultry supply chain that can be used for risk management and communication strategies;
9. Additional surveillance be carried out in people involved in handling poultry in HPAI infected countries;
10. Further studies be carried out on the survival time of the virus in the environment and environmentally sound disinfectants be developed to reduce the survival time of the virus in the environment and in material of high organic content;

11. Research be carried out on the economics of AI control and eradication, including the wider consequences of restructuring and the institutional requirements of financing long term AI prevention and control;
12. More sensitive, robust and inexpensive point of care (POC) tests for humans and animals be developed and validated;
13. A research agenda be defined building on the conclusions of this meeting as well as those of previous joint technical consultations of experts from OIE/FAO and WHO Reference Laboratories.

RECOMMENDATION No. 7

Economics and policy issues related to avian influenza

Considering that:

1. Although significant information is available to enable immediate decisions to be taken on AI surveillance and control, more information is required on the indirect costs of control measures, the implications of measures that may require restructuring of the poultry industry and the implications of AI and its control for the wider economy;
2. HPAI has potential zoonotic implications and broad impacts on the national economy, affecting sectors such as tourism making it a global issue that justifies international support;
3. AI control requires an efficient and transparent financing process with a clearly delineated framework for central and local funding;
4. A wide support system is needed that not only helps farmers to recover from immediate losses from outbreaks but also assists them in re-establishing their operations and improving animal husbandry practices with respect to animal health;
5. AI prevention and control measures can only be implemented through the establishment of effective and consistent operational plans based on supporting legislation.

The meeting recommends that:

1. Financing the strengthening of veterinary services to improve capacity building to implement AI control activities be given the highest priority;
2. Analyses be made of the potential social and economic impacts of AI control measures. The result of these analyses will assist in defining funding needs and in national and regional planning. The outputs should be widely shared within countries and within the region;
3. Funding for AI can be expected to originate from a number of sources in the private and public sector. A substantial level of international investment can be justified;
4. The structure of animal health financing be reviewed;
5. Planning for AI control include a broad financial support system that also addresses elements of education and awareness programmes, credit accessibility including compensation and social relief programmes for the really poor;
6. Planners recognise the difficulty of designing equitable and efficient credit and compensation programmes and take advantage of the considerable experience that already exists within Asia and elsewhere;
7. Countries ensure that they all have comprehensive operational plans that incorporate local know-how, and ensure that all authorities fully understand them.

D – REPORT OF THE SESSIONS

OPENING CEREMONY

Chair: Mr. Anton Rychener
Rapporteur: Dr. Guo Fusheng

The opening session commenced with a formal welcome from His Excellency, Cao Duc Phat, Minister of Agriculture and Rural Development (MARD) on behalf of the Government of Viet Nam. The Minister advised that the outbreaks during 2003-2005 caused great losses to the Vietnamese economy and, critically, took the lives of 32 people. The government was working hard but still having significant difficulty in controlling the epidemic. The epidemic is a threat not only to Viet Nam, but also to the international community, therefore international cooperation is very important.

Mr. Nguyen Tien Nhan, Vice-Chairman of the People's Committee of Ho Chi Minh City, warmly welcomed all delegates to Ho Chi Minh City and confirmed the importance of the meeting for the Government of Viet Nam.

Dr. Shigenu Omi, WHO Regional Director, Western Pacific Region, made the opening address on behalf of WHO. Dr. Omi expressed concern about the risk of a global human influenza pandemic, stating that at least four factors must be borne in mind. Considering that influenza pandemics have occurred every 20-30 years, as the last pandemic took place nearly 40 years ago, a pandemic may occur in the near future; the virus is now well established in many parts of Asia; it is proving to be very versatile and resilient; and, finally, AI viruses are excreted by domestic ducks without causing any symptoms of disease, making it more difficult for the human population to understand the risks and avoid infection.

Dr. Teruhide Fujita, OIE Regional Representative for Asia and Pacific, made an opening presentation on behalf of OIE Headquarters and the Regional office Tokyo. Dr. Fujita commented that the disease in the Asian region has links with traditional poultry production and marketing systems. Waterfowl, especially ducks, can act as reservoirs of infection with or without showing clinical signs. OIE has developed standards and recommendations on the diagnosis, surveillance and control measures, including recent recommendations on vaccines and vaccination policies applicable under different epidemiological circumstances.

Dr. Samuel Jutzi, Director of AGA FAO, welcomed all participants on behalf of FAO. He pointed out that avian influenza will persist for many years in some of the countries. In the immediate and short term, the objective is to minimize the risk of infection spilling over into farmed poultry and humans. In the long term, the objective is to eliminate infection from as many production systems as possible. Current evidence suggests that trade in live poultry, mixing of avian species on farms and live bird markets, and poor biosecurity in poultry production units contribute much more to disease spread than wild bird movements and FAO recommends against the destruction of wild birds and their habitats.

All international organizations expressed their sincere thanks to the Government of Viet Nam for hosting the meeting. All stressed that collaboration among organizations and countries at both regional and global level must be strengthened if this serious transboundary disease is to be controlled.

SESSION I: CURRENT AI SITUATION IN THE REGION

Chair: Dr. Teruhide Fujita
Rapporteur: Dr. Hans Wagner

Dr. To Long Thanh – Country report Viet Nam

Viet Nam has about 270 million poultry, comprising 190 million chicken and 70 million ducks. The outbreak of HPAI in Viet Nam occurred in two waves, i.e Dec 2003 - March 2004 and mid-April 2004 to present. Outbreak clusters occurred in the Red River and the Mekong wetlands. Dr. Anh presented some results of a recent study carried out in collaboration with FAO experts using a logistic regression model for the first wave, which included multiple parameters (paddy yield, % of agricultural land, human population density, pig density, % chicken farms, poultry density, average height (DEM) and rural poverty). The model confirmed that areas at risk of observing AI are located in the north and south and associated most likely with waterfowl production. Retrospectively, the model was also good at predicting the 2005 outbreak locations.

The second wave peaked in Jan-Feb 2005, in which about 1.1 million birds were killed, including 460 000 chickens and 530 000 ducks. Most outbreaks occurred in the same areas as the first wave or in neighbouring communes. However, only small farms, backyard chickens and domestic ducks were affected. The increase in outbreaks can also be attributed to the Tet festival, with increased animal and people movement, and the low winter temperatures favouring virus survival.

Politburo Directive No. 35 specifies the actions to control HPAI, which include all the key elements recommended by the OIE and FAO for control of HPAI.

Laboratories have analyzed about 100 000 disease samples and more than 300 000 chicken and duck serum samples and 5 000 swabs were tested during the surveillance exercise. In pigs, 198 swab samples and 400 serum samples were analyzed with negative results.

Since the beginning of the outbreak, improvements in surveillance, disease reporting and control of poultry movement have been achieved but there is still room for improvement.

While Viet Nam has not used AI vaccination to date, some vaccines have been tested on a limited scale and vaccination is currently under consideration.

Dr. To Long Thanh acknowledged the support received to date from countries and international organizations but called for further assistance in the form of international expertise to assist with diagnosis, vaccination, and research into transmission, virulence, genetic evolution; assistance to strengthen local capability in laboratories, veterinary services, grass-roots participation and training, and support for international and regional cooperation and networking.

Dr. Dewan Sibartie – Country reports on HPAI situation

Dr. Sibartie presented the OIE analysis of responses from 19 countries (12 non-infected and 7 infected). OIE originally requested reports from 24 countries in the region.

Non infected countries:

- 10/12 have contingency plans
- 11/12 have active surveillance

- 9/12 monitor AI in wild birds
- 2/12 have carried out simulation exercises.
- All have banned poultry/poultry product importations from affected countries

Infected countries:

- Regular reporting to OIE is still a problem
- AI is endemic in 3 countries
- There are active outbreaks in 1/7 countries
- 7/7 now have laboratory facilities
- 4/7 received laboratory support from outside the country, with 2/7 using OIE/FAO Reference laboratories
- 5/7 carry out surveillance in wild birds
- 2/7 have done some surveillance in pigs,
- 2/7 vaccinate poultry
- No country carries out DIVA testing
- 7/7 have improved in capacity building, awareness and collaboration with public health authorities

The major problems identified were: insufficient funding; lack of adequate compensation; uncontrolled or illegal movement of birds and products; infection in small but extensive systems; live bird markets; situation in wild waterfowl and ducks and non-reporting of cases.

Dr. Sarah Kahn –FAO Electronic conference on avian influenza control

The E-conference had the objective of generating up to date information on actions taken and results obtained in the prevention and control of H5N1 HPAI. In total, 185 participants registered and FAO received 32 contributions and 11 country reports. The following themes received most discussion:

Origin of the H5N1 epidemic and the role of wild birds: Two pathways have been suggested. H5N1 was introduced by wild migratory birds and afterwards spread by marketing channels. Alternatively, H5N1 is endemic since the late 1990's in water birds, and viral evolution combined with increasing poultry density resulted in a H5N1 transferring into domestic poultry followed by the epidemic.

Recommended approaches to surveillance and control: It was acknowledged that the OIE Standards and FAO Guidelines and Recommendations are valid and a useful guide. The successful control of HPAI requires improved veterinary infrastructure, active search for infection, improved biosecurity, and early warning of the genetic and pathogenic changes in HPAI viruses in the field.

Vaccines as a tool to help control H5N1, HPAI: While countries that are historically free of infection would not normally use vaccines, for countries with widespread infection, vaccination can be a useful tool for control. Vaccines must meet OIE standards and FAO recommendations. Cheaper and more practical vaccines are needed, and validation of vaccine use and serological testing in ducks. Application of vaccination has to be monitored using the DIVA approach or sentinel birds. The need for an exit strategy was underlined.

A coordinated and harmonized approach to a regional problem: Avian influenza due to H5N1 is a problem of regional scope and global implication. The FAO guidelines provide a basis for a harmonized approach to diagnosis and surveillance. The need for improved coordination of analysis and exchange of information was recognized. Training and scientific support for epidemiological analysis and control activities have been provided but more help is required.

**SESSION II: REVIEW OF RECOMMENDATIONS OF
FIRST HPAI REGIONAL MEETING AND
GLOBAL ACTIVITIES OF INTERNATIONAL ORGANIZATIONS IN 2004**

**Chair: Dr. Ronel Abila
Rapporteur: Dr. Wantanee Kalpravidh**

Dr. Mike Nunn – Follow-up Recommendations of the First HPAI Regional Meeting

Dr. Nunn recalled the Recommendations of the first Regional Meeting and the activities carried out at national and international level. Although AI control measures are not identical, general principles can be applied to all countries. At the national level, improvements in surveillance and diagnosis activities and linkages between animal and public health have been made. There are ongoing efforts to improve regional cooperation and collaboration amongst donors. At the international level, a number of priority activities have been completed or are under way, including establishment of regional networks, conduct of research on key topics, understanding of the socio-economic impact of AI, the need for restructuring of poultry production systems to minimize risk and the revision of the OIE Terrestrial Animal Health Code. As it will be difficult to eradicate HPAI in this region quickly, the evolution of AI and its potential to cause a human pandemic are important issues to be studied and better understood. Dr. Nunn concluded that a cooperative, coordinated and multidisciplinary approach is needed to tackle the H5N1 problem in this region.

Dr. Joseph Domenech – FAO Activities and Results

Dr. Domenech described the FAO response and results of activities. An FAO Technical Task Force has been established to consolidate available data and undertake disease intelligence gathering and analysis. The Task Force regularly informs and communicates with related organizations via FAO publications and websites. A total of US\$ 5.5 million have been allocated for six National TCPs, three Regional TCPs, three Sub-regional TCPs and one International TCP to support interventions against AI. Objectives of the National TCPs for Viet Nam, Cambodia, Lao PDR, Indonesia, China and Pakistan were to improve diagnostic and surveillance capacities, design response and control strategies and improve contingency planning. At the regional level, emergency responses have been undertaken to understand the origin of the crisis, assess the situation and revise strategies for control through expert meetings and missions to each country.

Dr. Domenech described the objectives of the 3 Sub-regional TCPs which provide for the establishment of networks of AI surveillance and diagnostic laboratories in South-East, East and South Asia to improve the quality and transparency of the information, and in doing so to ensure early detection of and response to AI. The objectives of a further TCP are early assessment of the impact of AI crisis and identification of possible rehabilitation options. In longer term, the FAO/OIE initiative GF-TADs, on progressive control of transboundary animal diseases at the global level will be critical to the control of AI and other transboundary animal diseases. Regarding to zoonotic diseases in particular, coordination at international level among FAO, OIE and WHO is provided for by the Global Early Warning System (GLEWS).

Dr. Leslie Sims – FAO Recommendations on the Prevention, Control and Eradication of HPAI in Asia

Dr. Sims described FAO Recommendations on the Prevention, Control and Eradication published in September 2004. He emphasized that it is not possible to prescribe an approach that will suit each

country. Rather, each country is responsible to define its national strategy, taking into account their particular biological, epidemiological, economic, political and social factors. Given the current situation in the region, H5N1 eradication will require a long term management response. Dr. Sims underlined the main measures to prevent, control and eradicate HPAI, including timely destruction of infected and at-risk poultry in combination with cleaning and disinfecting and proper disposal of carcasses and infective material. Enhanced biosecurity, movement management, changing production practices including the proper use of vaccination were also emphasized. All of these control measures reduce risk but none used in isolation is sufficient. At the conclusion, Dr. Sims highlighted that it will be necessary to change poultry production and marketing systems to control AI in the long term.

Dr. Dewan Sibartie – OIE Standards on Avian Influenza (AI) - Proposed standards for international trade and surveillance guidelines

Dr. Sibartie explained the revisions to the OIE *Terrestrial Animal Health Code* AI chapter to be proposed for adoption at the OIE General Session in May 2005. He highlighted modifications to the Chapter, including definitions of AI infection and incubation period. Dr. Sibartie described the concepts of zoning and compartmentalization proposed in the new chapter with the objective of facilitating safe international trade. Dr. Sibartie discussed proposed changes in regard to the status of a country or zone or compartment and the trade requirements from a country or zone or compartment with different AI status for poultry and poultry products including live poultry, live birds other than poultry, day-old live poultry, egg for human consumption, fresh meat of poultry, meat products and products of poultry origin intended for use of animal feeding, or agriculture or industrial use as well as feathers and down from poultry. Amendments have also been proposed to the general surveillance principles including methods, strategies and interpretation of test results. It is important to note that the new AI chapter will not change the rules with regard to vaccination. Its use does not imply exclusion of export trade.

Dr. Frits Pluimers – OIE Guidelines for humane killing of animals and carcass disposal

Dr. Pluimers, an OIE expert on carcass disposal, explained that two draft Guidelines, for the humane killing of animals for disease control purposes, and General guidelines for the disposal of carcasses, have been prepared by Ad hoc groups as appendices to the *Terrestrial Animal Health Code* to be considered by OIE International Committee in May 2005. Dr. Pluimers defined humane killing of animals with reference to key principles and appropriate methods that can be used for small and large numbers of animals. With respect to carcass disposal, the principles and technologies, including rendering, burning, burial, aerobic fermentation anaerobic fermentation and other techniques, were described. Dr. Pluimers also pointed out the factors to be considered when choosing the methods for killing and carcass disposal. In conclusion, Dr. Pluimers recommended that authorities be as prepared as possible to react in an emergency situation.

SESSION III: SCIENTIFIC ADVANCES ON AI - ANIMAL HEALTH AND SOCIO-ECONOMIC ANALYSIS

Animal health

Chair: Dr. Dewan Sibartie
Rapporteur: Dr. Leslie Sims

Dr. Nguyen Tien Dzung – Epidemiological Risk Factors in Viet Nam

The first wave of HPAI in early 2004 appeared to affect mainly large commercial farms along roads. Poor biosecurity and farming of mixed poultry were considered important factors. Movement bans apparently helped to reduce the occurrence of new cases in this wave. Serosurveillance in Thai Binh Province demonstrated that a high proportion of household duck flocks and Muscovy flocks in villages contained seropositive birds and a smaller number contained seropositive chickens. Repeat serology on 3 communes in October demonstrated only low levels of seropositivity. Serology in the Mekong delta in August 2004 revealed a low number of seropositive ducks. By October this had increased but there was a very low rate of seropositivity to H9.

In the second wave (from late December) there has been more clinical disease in ducks, in village poultry and mainly in the two river deltas. An outbreak in ducks demonstrated that virus did not necessarily spread even between neighbouring flocks.

After extensive data integrated analysis done by the Viet Nam teams with support from FAO expertise, it was concluded that the main risk factors were poultry and poultry product movement and that delays in diagnosis as well as inadequate surveillance and compensation assisted in spread of the disease.

Dr. Prasit Chaitaweesub – Avian Influenza risk factors in Thailand

Dr. Chaitaweesub summarised the study between Department of Livestock Development and FAO of potential risk factors using geospatial mapping and analysis. The prevalence of HPAI was increasing in September 2004 and the intensive survey at the time apparently halted progression of the epidemic. There was a good match between chicken outbreaks and free grazing duck distribution. There were proportionally more cases in ducks based on the percentage of ducks in production compared with other poultry.

The first study suggested that the free grazing duck production in rice growing areas was the main agro-ecological determinant in the establishment, spread and persistence of HPAI. In a second study focussing on one province, the two main factors identified were the number of ducks per village and the proportion of rice fields within a 5 km radius. A strong association was detected between HPAI cases at any point in time and the spatial distribution of previous outbreaks. A third study confirmed previous reports but also suggested the likelihood of chicken-to-chicken spread. The current need is to identify transmission pathways from reservoirs of infection to terrestrial poultry. A group of 9 provinces in the central wetlands of Thailand appear to be the areas where risk is highest. These practice year-round rice production.

Dr. Ian Brown – Analysis of recent scientific research findings

Dr. Brown from the OIE/FAO Reference Laboratory, presented a review and analyses of research carried out on molecular epidemiology and vaccines, and its relevance to controlling current outbreaks of AI in Asia. The key issues covered are outlined below:

- Certain strains of H5N1 virus from 2002 were pathogenic for ducks and transmitted more effectively between ducks than earlier strains.
- Unpublished data from St Jude's Hospital, Memphis suggested that 2004 H5N1 isolates were excreted for longer periods by experimentally infected mallards and apparently survived longer than was thought to be the case with viruses studied previously.
- Several recent papers reported on experimental and natural infection in felidae fed on infected poultry meat.
- Experimental infection in ferrets demonstrated differences in pathogenicity between H5N1 strains isolated from humans and those isolated from chickens. Specific genetic explanations for this were lacking.
- Unpublished studies on LP and HP H7 viruses revealed much greater cloacal excretion by the latter.
- Phylogenetic analysis of HA genes reveals similarities between isolates from the same country/zone with considerable variation in strains from China and Hong Kong. All viruses belong to the Gs GD/96-like lineage and there is no apparent pattern that identifies viruses from aquatic and terrestrial poultry.
- Vaccines provide protection against infection and disease, reduce shedding of virus and protect against high or low dose of field virus and can interrupt virus transmission in the field.
- The dose of virus required to infect a chicken with a recent Korean strain of virus is >100 EID50.
- Rapid tests for influenza viruses lack sensitivity but can be useful in defined situations.
- Real time RT-PCR is rapid and highly sensitive but expensive to set up.

Dr. Vincent Martin – Epidemiological hypotheses and risk factors

This presentation introduced the complex epidemiology of H5N1 avian influenza and the interplay between farming systems, marketing practices and reservoirs of infection. Disease is just the 'tip of the iceberg' of infection and specific targeted surveillance activities are necessary to better understand the mechanisms contributing to the occurrence and spread of infection.

The presentation was illustrated with the results of a geospatial analysis of outbreaks that was carried out in Viet Nam. This analysis based on the 2004 outbreak data highlighted the existence of two main likely clusters of infection identified in the North and the South of the country and a third one in the central region. Agro-ecological and farming system practices linked to waterfowl production were identified as possible risk factors involved in the maintenance of the infection. Similar results had been found in Thailand where an extensive survey had been carried out at the end of the year. The epidemiological studies carried out thus far need to be refined at local level and validate the hypothesis generated. It is also deemed necessary to focus surveillance and control efforts in areas where agro-ecological conditions and market practices are in favour of infection maintenance and disease spread.

Professor Roger Morris – H5N1 Avian Influenza – why did it happen?

Professor Morris reported on an analysis prepared by the Massey University Epicentre. Amongst other things, he proposed that the north-east Asian outbreaks and Indonesian outbreaks fitted a wild bird introduction and the Thai outbreak may also have been wild bird related.

Epicentre analysed 17 risk factors for infected and at-risk countries and found generally good but not perfect correlation between certain industry factors and levels of disease. Control by stamping out has only worked in countries with good surveillance and relatively small outbreaks. Vaccination has enhanced control. Surveillance by case finding alone is not adequate to achieve effective control. Rather, there is a need to evaluate risk based approaches that address significant risk pathways. Control programs must be developed following a country specific approach - progressive reduction of infection is needed rather than crisis management.

Dr. David Swayne – Food safety

This presentation addressed meat safety and avian influenza viruses, with an emphasis on H5N1 virus. Dr. Swayne, an OIE expert on avian influenza and food safety issues, reported that some 169 cases of disease in humans associated with AI viruses are recorded of which 48 were fatal. These 169 cases include H5N1 viruses and H9N2, H7N2, H7N3 and H7N7 viruses. Only H5N1 viruses have been associated with multiple fatalities.

From studies published to date, the main risk factor associated with acquiring disease due to H5N1 virus appears to be contact with poultry, although occupational exposure has not been implicated (note that a recent case involved a market worker in Viet Nam – Ed.). This contrasts with the situation in the Netherlands where occupational exposure (i.e. of culling teams) was important.

In Hong Kong in 1997 the preparation and eating of poultry were not considered to be risk factors. Dr. Swayne suggested that the possible routes of infection include inhalation of droplets, contact with mucus membranes, and ingestion of virus possibly through consumption of raw poultry products.

Dr. Swayne demonstrated that current Asian H5N1 strains can be found in meat at high concentrations and could pose a health hazard if the virus is not inactivated by cooking. This was not the case with LPAI viruses. He also showed that vaccination of birds prevented H5N1 viruses from multiplying in meat. Cooking of meat and pasteurisation of egg products are also effective measures for killing virus.

Based on these findings Dr. Swayne concluded that meat from poultry actively infected with H5N1 HPAI virus should not be processed for consumption.

Dr. Li Yanbing – Situation in China, including use of avian influenza vaccine

Dr. Li provided information on the outbreaks of HPAI in China in 2004 (49 cases in 16 provinces in less than 4 weeks in late January to mid-February; one additional case was diagnosed in July). All viruses are related antigenically to the original goose virus.

The main vaccine used is a killed H5N2 virus and this is capable of mounting a strong immune response in chickens. This vaccine appears to be working in the field. A new reverse genetics vaccine is being tested experimentally developed based on Gs/GD/96. This apparently affords longer protection than the existing vaccines. Dr. Li presented a slide showing that vaccination of domestic water fowl will reduce the levels of infection. A recombinant poxvirus-vectored vaccine has also been developed for use. A marker vaccine that can demonstrate whether birds have been vaccinated in the past is also available.

Socio-economic analysis and rehabilitation

Chair: Ms. Fernanda Guerrieri
Rapporteur: Dr. David Swayne

Dr. Anni McLeod: Long term control of HPAI: social, economic and policy issues

Presenting data from an FAO-funded study, Dr. McLeod stressed the negative economic impact of both short and long term control programs at the national level. Sectors that were directly or indirectly

connected to poultry production systems were, in general, negatively impacted while animal health providers and other meat industries were positively impacted.

Within a country, the impact on poultry systems varied along the market/value chain and with the type of chain. Large countries with growing economies tend to have sufficient Gross Domestic Product (GDP) to finance the recurrent costs of AI control but many of the poorer countries need investment assistance. The problem is complex and demands co-operation between financial institutions, and livestock production, animal health, and human health agencies. Poultry sectors will need to be restructured during rehabilitation and development of alternative livelihoods will be required in rural areas. Changes in poultry production systems will also affect associated rural farming sectors involving production of swine and rice.

Dr. Frands Dolberg: Rehabilitation and restructuring

Dr. Dolberg presented findings from an FAO-study of poultry production focussing on smallholders in Cambodia, Indonesia, Lao PDR, Thailand and Viet Nam. The study identified the most affected and vulnerable groups, and made recommendations for appropriate interventions for short-term recovery and longer-term rehabilitation. In all countries studied, most rural households keep poultry and, for the poorest, poultry are the only farm animal. Since the AI outbreaks, poultry production has become more polarized with fewer birds per farm in smallholdings but greater concentration in industrial/commercial sectors. The smallholder sector has played a role in the spread because farmers market sick birds and owners split poultry between multiple households to minimize losses. Financial compensation has been slow at reaching the smallholder level and smallholders have limited access to veterinary, production and credit services. Animal health services at village level need improvement, including support from Animal Health Workers (“paravets”), and reporting systems and access to information and training. Farmers should be provided with appropriate and translated biosecurity guidelines on AI. Credit or microfinance should be used as a tool for rehabilitation and as an alternative to direct compensation for countries that cannot afford to compensate. Farmer groups and associations should be developed to strength the farmers’ activities and the dissemination of information.

Public health issues

Chair: Dr. Teruhide Fujita
Rapporteur: Dr. Juan Lubroth

Presentations on Public Health issues were made by WHO officials, Dr Peter Horby and Dr Tony Hazzard. In addition, Dr. Nguyen Van Binh, Deputy Director of Preventive Medicine and HIV-AIDS Control, Ministry of Health, Viet Nam made a presentation on the challenges that Viet Nam currently faces in avian influenza control.

Dr Horby described issues relevant to food security and economics for these populations, where some 33% of the children in the region are underweight and the cost of alternative sources of protein rose due to regulatory intervention for avian influenza. Dr Horby commented on the very high case fatality rate (76%) for H5N1 and the real risk of a pandemic - since there has not been a pandemic in the last 35 years, there has been a demonstrable increase in host range and human-to-human transmission could occur at any time. Dr Horby stressed the need for control and elimination of animal sources to protect the entire population and not just risk groups, particularly in light of the human population’s proximity to animals. The results of a questionnaire (600 interviews) conducted by CARE International on knowledge, attitudes, and practices indicated that there are many misconceptions of risk and greater

emphasis on public awareness and education is needed. Dr Horby concluded that Ministries of Health and Agriculture have a shared problem, with a common population at risk and shared research needs, and should seek a shared solution, taking into account macroeconomic, microeconomic, and nutritional issues.

Dr Hazzard stressed the need for interagency collaboration in risk reduction along the length of the production, distribution of the marketing chain of animals for food. WHO would like to see better coordination between Ministries of Health and Agriculture. Coordination between WHO, FAO and OIE should also be improved, developing strategies to be implemented on behalf of agriculture and veterinary workers and society at large.

Dr Hazzard stated that to reduce the risk to humans there was a need to improve national and regional capacity to identify and implement prevention and control strategies and actions by strengthened risk-based regulatory frameworks and their enforcement. The need for enhanced community awareness and understanding of issues was also underlined. Future priorities include: (1) the identification of marketing practices and implications for human health; (2) review of regulatory frameworks and their enforcement; (3) better dissemination of current FAO/OIE guidelines on biosecurity particularly in poultry sectors 1 and 2, and through community based workers; (4) development of practical activities to protect human health and food safety in rural and urban areas and marketplaces; (5) identification of community champions (including health and veterinary officers) for advocacy and social mobilization in local communities; and (6) support of national and local authorities interventions at the market place. These actions should lead to a better partnership (“healthy cities alliance”) between local authorities, international organizations and donors in which technical advice is provided and seed funding granted. The overall objective is to have “healthy markets” and “communities living safely with animals”.

Dr. Nguyen Van Binh identified as key challenges the incomplete epidemiological understanding of HPAI, the limited availability of tools for diagnosis of infection and the lack of facilities for treatment of infection in the human population. Facilities for sample transport and testing are lacking.

Dr. Nguyen Van Binh recommended that improvements be made on an urgent basis in the following areas: public awareness, application of control measures in outbreak areas, poultry husbandry practices and market facilities. The Government of Viet Nam’s AI control plan for 2005 builds upon greater cooperation between the Ministry of Health and MARD with the objective of improved surveillance for early detection of disease and treatment to minimize the impact on human health. The control plan is under the direction of a national steering committee and 64 provincial committees and activities occur at the national, local and inter-sectoral level. Six key elements were identified, including: surveillance; laboratories; treatment; public education; outbreak prevention; and research. In the short term it is important to enhance public awareness and improve the preparedness of facilities and personnel (including the provision of training and protective equipment). The Government of Viet Nam is continually working to enhance coordination between international and national facilities. In the longer term, it is planned to construct facilities at several locations within Viet Nam. Dr. Nguyen Van Binh presented estimates of the investment required to fully implement the planned activities, amounting to approximately US\$23M, of which US\$18M would need to come from external sources.

SESSION IV: WORKING GROUPS

On the afternoon of the second day of the meeting, the participants divided into working groups to discuss five specific areas, each facilitated by a moderator as follows:

- Surveillance and Control – moderator Dr. Vincent Martin
- Diagnosis and vaccination – moderator Dr. Sarah Kahn
- Economic and policy issues/rehabilitation and restructuring – moderator Dr. Anni McLeod
- International standards and trade, and international cooperation – moderator Dr. Dewan Sibartie
- Human health – moderator Dr. François Meslin

A rapporteur from each group was requested to prepare outlines of recommendations, and a representative from each working group then reported the findings to the plenary session (see Session V below) on the morning of the third day of the meeting for discussion by all participants.

The outcomes of the group discussions are summarised below.

SESSION V: WORKING GROUP REPORTS AND RECOMMENDATIONS ON FUTURE NEEDS

Chair: Dr. Joseph Anelli
Rapporteur: Dr. Mike Nunn

Surveillance, Prevention and Control

Participants acknowledged that diagnostic and surveillance capability for avian influenza in the region has been substantially enhanced through national efforts, with support from international organizations, and that FAO/OIE guidelines had provided a useful framework on which countries have built their surveillance programs. Surveillance is expensive and must be targeted to obtain the best value for money by identifying reservoirs of infection and the transmission pathways responsible for spread of infection using a risk factor-based approach to define risk management interventions. Participants agreed that surveillance must be closely integrated with control strategies and that appropriate surveillance strategies for vaccinated poultry must be carefully planned before vaccine is introduced into a country or compartment. They acknowledged that wild bird surveillance is a lower priority for risk-based surveillance but that continued research into the role of these birds in maintenance and transmission of avian influenza virus is warranted. Participants recognised that in many countries there is a need to improve the flow of surveillance data and the capacity to analyse data. They agreed that countries need to recognise the importance of information-sharing through regional networks and to increase the number of samples sent to reference laboratories for genotyping and characterisation.

Diagnosis and vaccination

The meeting endorsed the use of standardized approaches (based on OIE, FAO and WHO guidelines) to diagnostic testing and recognized the need for ongoing support for national laboratories in testing, biosafety and biosecurity, quality assurance, and proficiency testing through the regional network laboratory and FAO/OIE reference laboratories. Participants noted that laboratory biosecurity includes issues related to both biocontainment (OIE standards) and worker occupational health and safety (WHO guidelines), and recognized that work on avian influenza viruses should be undertaken only in laboratories operating at an appropriate level of biosecurity (BSL2+). Participants noted that, if used appropriately in conjunction with other control measures, vaccination of poultry provided a tool both to help to protect human health and to control and help eliminate infection from poultry. They confirmed

that vaccines should meet international standards consistent with OIE guidelines and be used only with government authorization and in conjunction with other control measures, in accordance with FAO/OIE guidelines. Participants agreed that before vaccine is introduced into a country or compartment, appropriate surveillance strategies for vaccinated poultry and an exit strategy should be carefully planned. They suggested that before vaccination is introduced into a country or compartment, carefully planned pilot studies should be used to assess risk factors and strengths and weaknesses of the approach, and that reference organizations and the international community should provide scientific, technical and financial support for such studies.

Economic and Socioeconomic Effects and Rehabilitation

The meeting acknowledged that the current epidemic of H5N1 avian influenza in poultry had different economic and socioeconomic effects on different production sectors. Participants recognised that there is a need for serious commitment to long-term financing of the prevention and control of avian influenza in the region, including costs such as changes to management systems, which may include sector restructuring that could be substantial in relation to the size of national economies. The meeting recognized that funding for avian influenza prevention and control could come from a number of sources — including taxation, insurance, cooperatives, and donors — but noted that HPAI has a large public good component due to its public health impact and that its control should be funded on that basis. To assess long-term social and economic impact for planning purposes, the best possible estimates of the potential impact of control strategies are needed and their assessments needs to be built in to the animal health planning process. Such planning should involve discussion with stakeholders and, the sharing, nationally and regionally, of knowledge (of methods, capacities and results) as it is accumulated. Participants agreed that a complete system of farmer support is likely to include elements of education, credit and accessible animal health services. In some countries, it may also include compensation and social relief programmes for the poor to cover periods of protein deficit following outbreaks and associated controls. Restocking may also be an element, but needs to be carefully designed to ensure that it contributes to the sustainability of the production system. The meeting recognised that credit is receiving serious consideration from countries in the region and that different forms of credit have their own benefits and challenges. Participants agreed that appropriate legislation is needed to facilitate disease control, but recognised that often it is not the legislation that is a problem but the capacity to implement. The meeting agreed that countries need to develop comprehensive operational plans that take account of local know-how, and ensure that all authorities fully understand them. Participants recognised that there is a need for both research or improved knowledge management, noting that quite a lot of information is available but not all of it easily accessible, and agreed that more attention be given to networking and knowledge-sharing.

International Standards and Trade and Regional and International Cooperation

The meeting confirmed the importance of following international standards and guidelines when trading poultry and poultry products. Participants noted that such standards and guidelines can be complex and difficult to interpret. They agreed that OIE should develop and promulgate a policy paper that details and explains and details the specific requirements of implementation of compartmentalization for avian influenza. They also agreed that OIE should document agreed methods for inactivating avian influenza viruses in processed products. Participants endorsed the need for ongoing regional cooperation and agreed that there is a need for an avian influenza control and eradication regional plan for South-East Asia and neighbouring countries. They agreed that this regional plan should be developed through ASEAN+3, in particular the ASEAN Sectoral Working Group on Livestock, to help strengthen regional cooperation and enhance national efforts to control and eradicate HPAI. Participants also agreed that avian influenza control and eradication national plans should be developed, based on a regional coordinated plan. The meeting endorsed the use of the

SEAFMD model for a regional approach to avian influenza, and agreed that the ASEAN Working Group on Livestock, SAARC and APEC should work together on appropriate activities to address HPAI control. Participants noted that ASEAN should liaise with international bodies to analyse and review regional and individual country plans and seek wherever necessary appropriate funding and technical assistance. They also endorsed the need for continued support for the FAO TCP surveillance and diagnostic networks.

Human Health

Participants acknowledged that H5N1 avian influenza viruses are now well-entrenched in several countries in Asia and will not be eliminated in the near future, providing an ongoing risk of infection to humans. Controlling the disease at source, in its animal hosts, is essential to prevent the occurrence of H5N1 infections in humans. Participants agreed that there is a need for closer cooperation and information exchange between ministries responsible for health and agriculture to reduce risks along the production, distribution and marketing chain. They suggested that FAO, OIE and WHO should work together and with relevant ministries in their Member states to manage the risk at the interface between humans and animals in all production systems. Participants recognised the need to implement existing FAO/OIE guidelines and acknowledged that the donor community needed to be aware of the additional costs of implementing these measures and associated longer-term restructuring of animal production systems. They noted that targeted programmes were needed to increase community awareness of high risk behaviours, both for people working with animals and for the general population, and that such programmes should be developed taking into consideration local community risk perception. The meeting confirmed that no HPAI suspect or clinically ill birds should enter the food chain. To protect those involved in poultry slaughter and food preparation, and ultimately to protect consumers, such animals should not be processed for consumption but should be appropriately destroyed. The meeting reiterated that there is no risk to human health from consumption of wholesome and properly cooked, or processed products, including eggs. The meeting recognised that from a public health perspective, research into several areas pertaining to the human–animal influenza interface could have a profound impact on protecting human health. In particular, animal and health authorities should undertake joint risk assessment of the whole poultry supply or value chain, to identify key risks, develop feasible risk management strategies, define appropriate education and awareness messages, and develop risk communication strategies. In addition, participants agreed as fighting cocks represent a special risk for humans, appropriate management strategies should be studied and vaccination in particular should be considered. Participants also agreed that there is a need to develop environmentally sound disinfectants that are active in high organic content environments.

SESSION VI: VIEWS OF DONORS ON HPAI PREVENTION, CONTROL AND ERADICATION

Chair: Dr. Samuel Jutzi
Rapporteur: Dr. Teruhide Fujita

In response to an invitation from the Chairman, Dr. Samuel Jutzi, regional and international organizations, donor agencies and countries commented on current regional efforts for HPAI prevention and control and support for disease control in the region as summarized below.

Dr. Rony Soerakoesoemah (ASEAN) identified HPAI control activities as one of its highest priority areas. ASEAN has held a series of meetings with member countries, which also included the China-ASEAN special Meeting on HPAI control in Beijing, March 2004; WHO-ASEAN Health Ministers meeting in Bangkok November 2004 and the 1st ASEAN AI Task Force meeting in Singapore in December 2004. The last-mentioned meeting proposed 8 AI-related areas of future cooperation and coordination among the members, including: stamping-out and vaccination policy (to be coordinated by Indonesia); containment measures; emergency preparedness and planning; diagnostic capability and control zones (Malaysia); public awareness (Philippines); information systems (Singapore); and disease surveillance (Thailand). International cooperation will be continued with FAO/OIE/WHO. ASEAN agreed to set up ASEAN Animal Health Trust Funds and will continue to strive for AI control and eradication, using the OIE SEAFMD model.

Dr. Mohamed Naseer (SAARC), on behalf of SAARC, spoke about the agreement to strengthen mechanisms for surveillance, reporting, diagnosis and management of emerging diseases by exchanging information and fully utilizing expertise and resources in member countries. The National Institute of Communicable Diseases in New Delhi has been designated as the SAARC center by Health Ministers and a concept paper submitted to the government of India. The temporary ban on importation of live poultry and their products from HPAI-infected countries was undertaken to prevent disease introduction to SAARC member countries, which are greatly concerned about the epidemiological situation in South East Asia. The SAARC countries also pay close attention to other transboundary animal diseases such as foot and mouth disease and Peste des Petits Ruminants in the SAARC region. It is imperative to cooperate regionally, and with FAO/OIE, to combat transboundary diseases, in particular by strengthening information systems.

Dr. Vincent de Wit (ADB), a representative of the Asian Development Bank (ADB), discussed ADB's work directly with governments and through the United Nations system. ADB has identified a number of priority areas, including systems for early detection and surveillance, evaluation of economic losses (direct and indirect), effects on ecosystems and capacity building. Additional priorities include improving knowledge of HPAI control programmes and methods for strengthening coordination, especially by national governments and international organizations; risk analysis and disease prediction. Issues recognized as high priority by ADB will be considered for funding.

Dr. Howard Batho (EU), on behalf of the European Union (EU), reported on work carried out by the Commission and by Member Countries, including France, Germany, the United Kingdom and Denmark. Projects have been delivered through international coordination to assist with strengthening veterinary services, diagnostic capability, etc. to ASEAN countries including Cambodia, Indonesia, Viet Nam and Lao PDR. The EU will continue to provide workshops and training in Southeast Asia and domestically in 2005. Dr. Batho stressed the need to provide a regional plan with a 'road map' and

time table, including specific country plans that take account of local situations. Inputs and outputs should be monitored to clearly demonstrate the effectiveness of implementation.

Dr. Batho identified the following key issues: biosecurity, public awareness, disease control and tracing, compensation, surveillance, role of carriers (ducks and wild birds), vaccination, and research on vaccines and diagnostic methods. The EU would like to see a review of previous actions and the clear declaration of political intent and renewed commitment to action and coordination at both regional and national levels.

Dr. Maria Pittman (EFSA, EU) presented comments on behalf of the European Food Safety Authority (EFSA), which was established in 2002. EFSA's functions and activities include general regulations on food and the provision of scientific advice and technical support for EC legislation. EFSA covers food safety, genetically modified organisms, animal health, animal welfare, risk assessment and review of diagnostic tools, vaccines and vaccine strategies.

A previous Scientific Committee has developed recommendations on control measures for both Low Pathogenic AI and HPAI, including on surveillance and the restricted use of vaccines in an emergency situation. Since 2003, reviews and recommendations on many relevant topics, including on diagnosis and control, research and development and animal welfare have been made available.

Dr. Laurent Msellati (World Bank), the World Bank in Viet Nam, reviewed the disease situation in Asia with a focus on new risks for public health, the growing global burden of animal diseases, impacts on industry and more broadly, with disease affecting food security, social structures, trade, governance and transparency of reporting. In response to AI the World Bank funded the preparation of an emergency recovery loan for Viet Nam in 2004 and was involved in specific lending to Cambodia, Lao PDR, China and Indonesia under the FAO/OIE partnership. The World Bank has also co-funded activities in this region in collaboration with international organizations and the government of Japan. Key objectives are to strengthen disease surveillance and diagnosis, including better management of human and financial resources. The World Bank recognizes the priority of improving linkages between veterinary authorities and para-veterinarians, in animal health and animal production at all levels. Current challenges include strengthening the capacity of veterinary services, building closer linkages between animal health and public health groups, public awareness, involving stakeholders, and linking interventions to the broader agenda of regulatory and institutional reform.

Dr. Mike Nunn (Australia), speaking on behalf of Dr. J. G. Murray, Chief Veterinary Officer, Australia, commented on the Government of Australia's expertise in animal health and in the formation of partnerships between animal health authorities, industry, and human health authorities. Australia has a World Reference Laboratory for AI diagnosis and surveillance which provides assistance and services; laboratory reagents, proficiency testing, training, survey design, data analysis and interpretation. Other relevant activities include capacity building by AusAID, promotion of research by ACIAR, and related activities of universities, consulting companies, and NGOs. Dr. Nunn emphasized the importance of identifying clear goals in order to meet international, regional, sub-regional and bilateral objectives for coordination and cooperation.

Dr. Hiroyuki Kamakawa (Japan) explained Japan's experience in the management of four HPAI cases in three Prefectures during 2004. Disease was eradicated by promptly applying strict control and eradication measures under a stamping-out policy, with a prohibition on the use of vaccines. With regard to international cooperation, Dr. Kamakawa mentioned that Japan has a high level of expertise and advanced laboratories. Hokkaido University is designated by OIE/WHO as a World Reference

Laboratory and the National Institute of Animal Health as an official confirmatory laboratory. Japan will further support AI control in Asia via a new programme of the OIE Regional Representation for Asia and the Pacific in 2005, through continued collaboration with FAO, which has a liaison office in Japan, and with ongoing JICA assistance.

Dr. Derek Belton (New Zealand), New Zealand's Chief Veterinary Officer, spoke of his country's vital interest and investment in biosecurity, continuing collaboration with FAO, WHO and OIE and with NGOs working in the region. No case of AI has been reported in New Zealand and the country has continued to strengthen policies on animal and human health and the marine environment.

Dr. Peter de Leeuw (Netherlands), discussed the 2003 outbreak of HPAI, which was eradicated relatively quickly but caused significant bird and trade losses. The Netherlands is greatly concerned about AI's implications for animal and public health and wished to contribute to disease control. Each country must develop its control strategies according to its specific epidemiological conditions. While the Netherlands did not use vaccine, vaccination might be useful to control disease in Southeast Asian countries. Given an effective surveillance system that vaccination would not automatically result in loss of export markets. National strategies must be developed in consultation with international organizations in a transparent manner. The Netherlands works with individual countries and international organizations, including on disease control and contingency planning and they aim to increase cooperation with Asian countries by providing expertise as needed.

Mr. Rodrick McSherry (USA) spoke on behalf of the United States of America, commencing with comments on recognition of progress in controlling AI in Asia. The US Government supports greater collaboration on animal disease control with national governments, international organizations and NGOs, particularly for AI and other trans-boundary animal diseases. The US Government emphasizes regional and national coordination on disease control, economic and human health issues and public awareness. USA will continue to support regional groups such as APEC and ASEAN in responding to AI, including by scientific and research activities.

SESSION VII: CONCLUSIONS AND RECOMMENDATIONS

Chair: Dr. Joseph Domenech
Rapporteur: Dr. Dewan Sibartie

The meeting discussed and accepted in principle a series of recommendations pertaining to: investment; international trade standards and surveillance; national, regional, and international coordination/cooperation; surveillance and control strategies; public health; research priorities; and economic and policy issues. These recommendations are presented in the 'Executive Summary and Recommendations' section of this report.

CLOSING SESSION

His Excellency, Cao Duc Phat Minister for Agriculture and Rural Development made a closing address to the meeting on behalf of the Government of Viet Nam. In closing the meeting, the Minister congratulated the organizers and all participants for the meaningful and fruitful discussions and conclusions. The Minister noted that the Government of Viet Nam was in agreement with the conclusions of the meeting and consider them relevant and timely. Finally, the Minister thanked the People's Committee of Ho Chi Minh City for its contribution to the arrangements for the meeting.

FAO and OIE thanked the Government of Viet Nam for having hosted this important meeting, and all participants, particularly those people who assisted the organizers by moderating working groups, reporting discussions and facilitating the other activities that took place. The efforts of the organizing committee, including Dr. Astrid Tripodi (FAO Viet Nam) were acknowledged.

Dr. Molina, on behalf of all the participants presented a motion of thanks to the Government of Viet Nam for its generous arrangements, including the organization of the field visit and hosting a welcome reception for the delegates. He also acknowledged and thanked FAO and OIE for their efforts and contribution towards the control of AI in the Region.

February 2005

E - SPEECHES

Welcome address by HE Mr. Cao Duc Phat, Minister of Agriculture and Rural Development, Viet Nam

Distinguished Delegates, Ladies and Gentlemen, It is the great honor for me, on behalf of the Ministry of Agriculture and Rural Development (MARD) as well the Government of Viet Nam- as the host country to warmly welcome the distinguished guests and delegates to this important Meeting.

As you may be aware, the Avian Influenza (AI) has occurred in Viet Nam since late 2003 to date causing great losses to the Vietnamese economy. In the first AI epidemic (from 27/12/2003 to 30/3/2004), 43.8 million poultry accounting for about 16.8% of the total poultry population died or destroyed. Although the reoccurrence of the second AI epidemic in late 2004 has occurred in a smaller scale, more than 1.5 million poultry were dead or destroyed. Moreover, AI has threatened public health. So far, 44 people have been confirmed positive to H5N1 and among them, 32 people died.

Right after receiving information about the occurrence of the outbreak, the Government of Viet Nam has established a National Steering Committee for Avian Influenza Control which was led by the Minister of Agriculture and Rural Development and consisted of members as leaders of related Ministries to coordinate AI prevention and control activities. The Government regularly supervises and instructs Ministries, Government agencies and local authorities to implement special measures to control the disease. The Veterinary Sector has mobilized more than 10,000 staff urgently working without holidays to participate in the disease prevention and control activities.

The main following measures have been applied:

- Delivering information fully and timely on disease situation so that people can employ the suitable measures to prevent and control the disease for poultry and to protect themselves; informing fully and timely to international organisations such as FAO, WHO, OIE and receiving recommendations of these organisations and international experts.
- Strengthening poultry transportation control among localities and across borders.
- Mobilizing government authorities from central to local levels and public organisations to take part in the disease prevention and control activities.
- Close cooperation between agriculture sector and health sector at all levels.
- Monitoring closely the disease situation from field level, quickly detecting and reporting the occurrence of outbreaks to destroy poultry at the outbreaks timely and apply strictly prevention measures.
- Cleaning and disinfecting environment.
- Supporting the farmers who had poultry destroyed.

By implementing these measures in union, the first AI epidemic (late 2003 - early 2004) was basically controlled in March 2004. All the poultry grandparent breeds and rare precious species have been protected. In addition, the safety of all the staff participating in disease prevention and control activities as well as the people working in the poultry sector was ensured. After this AI epidemic, MARD timely issued guidelines on poultry production rehabilitation, slaughtering, processing, transportation and consumption.

From April 2004, AI epidemic abated in the whole country, but from late 2004 it started to reoccur in several areas, mainly in the areas of the old outbreaks. In early 2005, because of the favourable weather

conditions, the high poultry density and the increase of poultry transportation during the Lunar New Year, AI outbreaks reoccurred in 35 out of 64 provinces and cities in the whole country.

Based on the experiences gained in the first AI epidemic, the Government of Viet Nam has instructed determined measures to control the disease. In the early 2005 AI epidemic, beside applying measures used in the first epidemic, other measures have been implemented such as:

- Monitoring closely the disease in duck populations, applying contained raising of ducks. When positive serum is detected, all the stocks must be destroyed. The incubation of duck eggs as well as the raising of new duck stocks was stopped within 6 months.
- Controlling strictly the slaughter of poultry. Some localities have established the slaughter systems.
- In the affected areas, poultry restocking was only allowed 60 days after the epidemic and after the veterinary hygiene conditions have been met.
- Although by now the development of the AI epidemic has been slow down, Viet Nam has still been facing a lot of difficulties in AI prevention and control, of which the major difficulties included:
 - Small scale of household poultry production patterns.
 - Backward veterinary conditions in slaughtering.
 - Limitation of knowledge on AI virus.
 - Lack of high qualified veterinary staff.
 - Deficiency of laboratory equipment for diagnosis, research and monitoring of the disease.
 - Weak veterinary capability at local levels.
 - Lack of safety working instruments for involved people.

Since the initial days of the epidemic, Viet Nam has received enthusiastic assistances from various international organizations, such as the International Organization of Animal Health (OIE), the United Nations Food and Agriculture Organization (FAO), the World Health Organization (WHO), the World Bank (WB), the Asian Development Bank (ADB), from other countries like China, United State of American, Australia, Japan, Malaysia, Italy, Singapore, Korea, and Denmark and from foreign companies in Viet Nam like Mitsui, VMEP... On the occasion of this Meeting, on behalf of the Government of Viet Nam, I would like to express my sincere thanks for these valuable assistances.

On the other hand, AI epidemic is a threat not only to Viet Nam, but also to other countries. During the AI control, all the countries have made very effort, and good experience has been stored up. Therefore, in order to prevent and control the disease efficiently, international cooperation should be strengthened. We welcome the organisation of this Meeting to exchange the knowledge on AI disease and the experience in the disease prevention and control, to discuss cooperated measures with the aim at quickly controlling the disease in each country and in the region. Viet Nam is willing to share experience and pledge to participate in activities of the international community to prevent and control the disease and consequently to eliminate the disease from the region in order to ensure a sustainable livestock production and to protect human health.

Finally, I would like to thank the Organization Committee for selecting Viet Nam - a country which is requiring the AI prevention and control activities with most determination to host this Meeting. I wish you all the best of wishes and the Meeting a success.

Thank you.

Address by Dr. Omi, Regional Director for Western Pacific, WHO

First of all, I would like to say how pleased I am to be back in this beautiful country. My last visit to Viet Nam was a year ago, when I was in Hanoi. And now it is my pleasure to be in this vibrant city.

I would like to thank our friends at FAO and OIE for inviting me here today. I am delighted to have this opportunity to speak to you and to exchange thoughts on how we can work together even more closely.

Just like you, I feel that this meeting comes at a critical time in our joint efforts to control avian influenza and prevent an influenza pandemic.

We at WHO believe that the world is now in the gravest possible danger of a pandemic. I will come to the reasons for this in a moment, but I would like first to briefly share with you a likely scenario if and when the avian influenza virus now circulating in poultry does develop pandemic potential among humans.

You will no doubt have seen some of the estimates of how many people might die in a pandemic. For me, those numbers are academic. The important thing is that if the virus becomes highly contagious among humans, the health impact in terms of deaths and sickness will be enormous, and certainly much greater than SARS. Hospitals, in particular, will come under great strain. The normal functions of society will be disrupted because so many people will be off work sick or too afraid to go to work. The economic costs will be very high.

This is why we are urging all governments to work now on a pandemic preparedness plan – so that even in an emergency such as this they will be able to provide basic public services such as transport, sanitation and power.

Let me now set out four reasons why we believe a pandemic is highly likely.

The first is that that influenza pandemics occur every 20 to 30 years. The last pandemic was nearly 40 years ago, so, by this measure, one is now overdue.

Secondly, the virus is now firmly entrenched in many parts of Asia. For example, here in Viet Nam, despite all the hard work of the government, we are seeing a similar pattern as this time last year, when the situation became serious around the Lunar New Year.

The third reason is that the virus is proving to be very versatile and very resilient. It is now being found in animals, such as cats and tigers, that were not previously considered susceptible to influenza viruses. Not only that, it is more pathogenic than the strain found in Hong Kong in 1997. This suggests that the virus is evolving in ways that increasingly favour the start of a pandemic.

Lastly, we now know that domestic ducks are playing a silent role in the transmission of the virus. The ducks are transmitting it without showing any signs of illness. The public health implications of this are very serious. How can people avoid exposure to the virus when they don't know which ducks are infected and which ones are not?

So, these are the four reasons that we believe the world is in serious danger of an influenza pandemic.

The longer the virus is circulating in animals, including chickens and ducks, the greater the risk of human cases – and, consequently, the higher the risk of a pandemic virus emerging through genetic changes in the virus.

Of course, infections in ducks and other animals are a matter for you in the FAO and OIE. But I am sure you share my view that these worrying developments mean we must all work together to make sure that what is happening in the animal world does not spill over and cause health emergencies for humans.

To prevent this happening, I believe it is time for us to pool our three organizations' strengths to reduce the risk to humans along the whole length of the food-production chain – from farm to table.

I am not an expert in animal matters, but common sense tells me that there are a number of areas where we can make recommendations to our Member States. For example, in collaboration with national animal and public health authorities, we should examine the risk to humans from dangerous agricultural practices such as raising chickens, ducks, pigs and other animals together – often in unsanitary conditions and normally with no barriers between them and humans.

Another example is wet markets, where animals that would not normally encounter each other in the wild are kept in close proximity to each other and are often slaughtered on the spot – normally with very little regard for hygiene.

We know that practices such as these can set the scene for the emergence of new zoonoses.

Together with our Member States, we at FAO, OIE and WHO can be a catalyst for change in the crucial area of interface between humans and animals. We can help set out the best practices for the production, distribution, processing and marketing of animals for food. We can also raise community awareness of high-risk behaviour, both for people who work with animals and for general members of the population.

There are many other areas for cooperation, but I will not go into them here as I am sure they will be discussed over the next three days.

You will recall that the Honourable Minister, Mr. Cao Duc Phat, recently called on the FAO and WHO to help with a long-term strategy to eliminate the H5N1 virus from the environment in Viet Nam. I am sure both our organizations will be only too happy to help, along with OIE. In this context, I believe our discussions here will help shape our response.

What we must be striving for in our work is a balance where humans can live safely with animals. This cannot be just a Utopian aim. It is vital that we achieve this objective as quickly as possible. If we do not, I fear that more threats such as SARS and avian influenza will emerge from the animal world to endanger global public health.

Once again, thank you for the invitation to be here. I look forward to a successful and fruitful conference.

Thank you.

Address by Dr. T. Fujita, OIE Regional Representative for Asia and the Pacific

His Excellency Mr. Cao Duc Phat, Minister of Agriculture and Rural Development, Viet Nam, His Excellency, Chairman of the People's Committee of Ho Chi Minh City, Viet Nam, Representatives of international and regional organisations, Distinguished Delegates of Member Countries, Honourable participants and observers, Ladies and gentlemen, It is my great pleasure to welcome all of you on behalf of Dr. Bernard Vallat, Director General of the World Organisation for Animal Health (OIE) and on behalf of the OIE Representation of Tokyo for Asia and the Pacific, to this Second FAO/OIE Regional Meeting on Avian Influenza Control in Asia, organized in collaboration with WHO and the Government of Viet Nam.

I would first of all like to express my sincere thanks to the Government of Viet Nam for hosting this extremely important meeting. I would also like to thank all the participants for having accepted the joint invitation of the OIE and the FAO to participate in this meeting.

This meeting has been jointly organized with the FAO, to assess the current Avian Influenza situation, to evaluate various achievements made during the past 12 months, to review recent scientific advances of the disease and to advise on new control measures in the light of the valuable experience obtained during the past year.

Highly Pathogenic Avian Influenza (HPAI) caused by the Avian Influenza virus subtype of H5N1 and reported since late 2003 in Asia, has proved to be one of the most hazardous transboundary animal diseases and zoonoses. The disease has negative impacts in the animal health sector and may have very serious implications for public health.

The appearance of the disease in previously unaffected countries and its re-emergence in this Region demonstrate the difficulties to control Avian Influenza. This also shows the importance of careful ongoing surveillance and monitoring together with additional appropriate measures for effective control in order to achieve the final target which should be the eradication of the disease.

The trend and frequency of current outbreaks of Avian Influenza in several in the region indicate the strong possibility that the disease could have become endemic in several countries in South East Asia despite all the efforts undertaken by government, industry and other stakeholders.

Based on our recent experience of the disease, and in particular based on information gathered during and after the First OIE/FAO Regional Meeting on Avian Influenza Control in Animals in Asia held in Bangkok, in February last year, it is now widely recognised that the disease condition in this Region has strong links with traditional animal production and marketing systems, including backyard and subsistence poultry production, multiple animal species farming practices with chickens, ducks and pigs sharing common environments as well as live poultry marketing systems.

Recent research has confirmed that aquatic birds, especially ducks can act as reservoirs of infection with or without clinical signs and are capable of excreting large amounts of viruses into the environment. It is also a considered opinion of the scientific community that the virus of Highly Pathogenic Avian Influenza is circulating in the Region, and that immediate eradication of the disease in the region cannot be envisaged in the short term under the current situation.

Such epidemiological circumstances deserve careful consideration while strengthening disease control in conjunction with bio-security to be applied throughout the poultry production chain, i.e. from

backyard or industrial production, distribution channels and marketing including retail sales. It is therefore necessary that more attention be paid to bio-security measures and the improvement of those production and marketing systems.

The disease control efforts will contribute to the containment of the virus of the disease and reduction of losses in industry as well as threats to human health. They will also limit the spread of the virus within the country and reduce the possibility of spread to other countries in the region and beyond.

Excellencies, ladies and gentlemen, For improvement of the disease situation in the region and implementation of various animal disease control measures to stop the possible spread of Avian Influenza, there is an immediate challenge. Strengthening the capacity of Veterinary Services for more effective disease control for more effective early detection and response system, follow-up of disease information, for regional and international cooperation on a disease control network in the region, for improvement of poultry production systems in order to obtain higher bio-security, for more applied research work including that on the possible role of ducks as a reservoir of the disease and vaccination has now become almost an imperative should we decide to achieve any progress. In fact, we shall achieve nothing without a strong and efficient veterinary service. I am happy to state here that thanks to the efforts of the OIE, strengthening of Veterinary Services to enable better disease surveillance and control is now accepted by major international organizations as 'an international public good'!

As mentioned earlier, Highly Pathogenic Avian Influenza still persists in some parts of countries in this Region thus posing a constant threat to other countries in the region and the rest of the world.

The OIE has been working with scientific experts, international organisations and its Member Countries on Highly Pathogenic Avian Influenza prevention and its control. Ad hoc Groups comprising the world's most reputed experts have already proposed science-based standards guidelines and recommendations on the diagnosis, surveillance and control measures that can safely be applied. They have reviewed diagnostic methods and made new recommendations on vaccines and vaccination policies applicable under different epidemiological circumstances. They have also reviewed the existing Chapter on AI in the OIE Terrestrial Animal Health Code regarding standards to be applied to the international trade of poultry and poultry products taking care that while such trade is being promoted by the removal of unjustified barriers, all reasonable precautions are taken to ensure that the virus is not spread to new places. Considerable attention has been given to food safety issues to ensure that the health of consumers is safeguarded and consumer confidence restored. The OIE has also produced standards related to humane killing of animals during the implementation of stamping out programmes and the disposal of animal carcasses. All these standards, guidelines and recommendations will be circulated to Member Countries for comments and all comments will be duly attended to by the experts and the OIE Central Bureau. After due consideration of comments received, the standards will be submitted for approval by the international committee comprising representatives of all the 167 OIE Member Countries during the forthcoming General Session in May 2005.

The OIE is also working in close collaboration with other relevant international and regional organisations including the FAO and WHO to control Avian Influenza and to prevent the spread of the disease in Member Countries. The OIE has recently proposed a joint OIE/FAO network on AI expertise primarily to promote research on the disease and to provide assistance especially to developing countries in the diagnosis and management of the disease. This OIE/FAO Network which comprises internationally reputed scientists from various parts of the world will have a Steering Committee presided by the President of the OIE Biological Standards Commission and a Secretariat based in an OIE Reference Laboratory for AI. The main objectives of this Network are to provide technical

assistance especially to developing countries in the management and control of AI epidemics and also to provide a mechanism for the OIE/FAO network to interact with the WHO influenza network on the animal –human interface of AI. This network will provide the WHO with virus isolates from animals which could be used to produce human vaccines in the wake of a possible pandemic.

The OIE will continue its relentless combat against the disease in 2005 through further strengthening of the activities of the OIE Regional Representation for Asia and the Pacific based in Tokyo, Japan and also through international and regional activities in collaboration with other international organisations including the FAO and the WHO.

As you know, the OIE and the FAO have officially agreed to work together in controlling major transboundary animal diseases globally and regionally, within the joint FAO/OIE Global Framework for the Progressive Control of Transboundary Animal Diseases called GF-TADs. The Regional Steering Committee, will ensure regional coordination of the clusters of activities, monitors progress, determine indicators for effective field and laboratory, epidemiological evaluation of disease events and control efforts. It will be composed of representatives of Chief Veterinary Officers, representatives of the Regional Specialised Organisations involved in animal health, specific donors and representatives of the OIE and the FAO.

The first meeting of the Regional Steering Committee will be held at the OIE Regional Representation for Asia and the Pacific, that serves as the Permanent Secretariat for the Regional Steering Committee, in Tokyo, Japan in a few days time, i.e. from 7 to 9 March. As expected, Highly Pathogenic Avian Influenza issues will be one of the priority issues to be discussed.

Excellencies, ladies and gentlemen, As you can see, not only governments but also other organisations and stake holders are working hard to achieve the target of effective animal disease control.

Therefore, I should like to again stress the importance of the strong support from the international community and donor organisations, for the prevention and control of Avian Influenza and other serious animal and zoonotic diseases which we are now facing.

In order to further strengthen Avian Influenza control, the OIE will hold an International Scientific Conference on Avian Influenza at the OIE Headquarters in Paris, France, jointly with the FAO and in collaboration with the WHO in April 2005. The Conference will provide a forum to exchange and share valuable experiences in the field of epidemiology, diagnosis, vaccines, control and eradication of the disease. The Conference will also examine standards to be adopted by our Member Countries and Regional Organisations. The new concept of “compartmentalization” will be assessed as to its suitability as a valuable tool to facilitate the international recognition of disease freedom.

I do hope that our discussions here in Viet Nam will help us reach consensus on various aspects of AI control in affected countries of the Region that can help affected countries to further develop strategies and measures to avoid cases of Avian Influenza and other animal diseases including zoonoses.

I wish to again thank the Government of Viet Nam to host and support this important meeting and all the participants to attend the meeting.

Thank you for your attention and I wish you all a successful meeting.

Address by Dr. Samuel Jutzi, Director, AGA, FAO

Honourable Minister Cao Duc Phat, Chairman of the People's Committee of Ho Chi Minh City, Distinguished country delegates, Representatives of international and regional organizations, Representatives of donor countries and agencies, Ladies and gentlemen. It is my pleasure to present these opening comments on behalf of Dr. Jacques Diouf, Director-General of the Food and Agriculture Organization of the United Nations. On behalf of FAO, I welcome you to the second FAO/OIE Regional Conference on Avian Influenza in Asia. I would like to acknowledge the kindness of our host, the Government of Viet Nam, specifically the Ministry of Agriculture and Rural Development, for allowing us to hold the meeting in Ho Chi Minh City.

I am particularly pleased to see among the distinguished delegates many veterinarians and other scientists who are actively involved in fighting avian influenza in infected countries. Disease control and prevention are among our highest priority activities, as public sector officials and scientists. It is a testimony to the seriousness of the avian influenza situation to see such high calibre scientific expertise gathered in Ho Chi Minh City and I am very pleased to be here with you today.

Avian Influenza has had great economic and social impact on affected countries and the disease situation could, in the worst case, lead to a new global human influenza pandemic. FAO has recognized the seriousness of this situation and has focused its respective leadership and coordination efforts in the Emergency Centre for Control of Transboundary Animal Diseases (ECTAD), under the direction of Dr. Joseph Domenech, Chief Veterinary Officer of FAO. In partnership with other international organizations, the World Animal Health Organization (OIE) and the World Health Organization (WHO), FAO has been working closely with affected countries, regional organizations, the international community and donors, to help manage this serious problem.

It is in the interest of both developed and developing countries to invest in the control and containment of avian influenza. Our objective is to protect human health – locally and internationally - and to promote food security – and our strategy is to control the disease at source. This means addressing the transmission of the virus where the disease occurs, in poultry, specifically free range chickens and wetland dwelling ducks, and thus curbing disease occurrence in the region before it spreads to other parts of the world. There is an increasing risk of avian influenza spread that no poultry keeping country can afford to ignore.

We must assume that avian influenza will persist for many years in some of the countries that had disease outbreaks in 2004-2005. The presence of these adaptable viruses in reservoirs such as farmed ducks, wild birds and live bird markets, means that avian influenza elimination must be addressed as a long term goal. In the immediate and short term, the objective, then, is to push infection back into known reservoirs and minimise the risk of infection spilling over into farmed poultry and humans in villages and farms. Minimising poultry infection and keeping humans free of avian influenza will help to prevent a global influenza pandemic. In the long term, FAO and its partners will continue working with affected countries to eliminate infection from as many production systems as possible, using the established, proven tools, and also embracing new technologies and approaches, based on the relevant scientific research and development efforts. Developed and developing countries must work in partnership to find answers to the key questions on the detection, control and elimination of avian influenza.

It is known that wild birds, particularly ducks, are a reservoir of avian influenza viruses and that it will not be possible to completely eliminate this source of infection. However, current evidence suggests

that trade in live poultry, mixing of avian species on farms and live bird markets, and poor biosecurity in poultry production units contribute much more to disease spread than wild bird movements. FAO calls on the international community to support the conduct of research so that the understanding of how wild birds contribute to the epidemiology of avian influenza in the field can be improved. FAO advises against the destruction of wild birds and their habitats as such practice is unlikely to contribute significantly to disease control and is inappropriate from a wildlife conservation viewpoint.

There is a complex relationship between human behaviour and poultry production and marketing systems. We continue to hear tragic reports of human illness and death arising as a result of risky practices. Public awareness of disease risks must be raised and some traditional practices changed to prevent further cases of human infection.

The production of poultry and other livestock is continually increasing in Asia, to meet the needs of growing urban populations. The effects of avian influenza and the threat of future outbreaks of transboundary animal diseases, including animal diseases that affect humans will increase with growing intensification of livestock production. For countries of Asia, and the international community, it is important to make significant and sustained veterinary interventions to cut the cycles of disease transmission and establishment.

In this context, I would like to mention an initiative which FAO and OIE have recently agreed: this is the Global Framework for the Progressive Control of Transboundary Animal Diseases or, in short, GF-TADs. The goal of this initiative is to help strengthen national Veterinary Services for the application of effective epidemiological knowledge to progressive disease control at source. In addition to the necessary strengthening of the veterinary services at the national level, GF-TADs emphasizes regional coordination and cooperation as a prerequisite for the effective control of serious, highly contagious diseases, such as avian influenza, that do not respect international borders. The initiative is getting started in Asia and I invite all countries, regional organizations and donor agencies to support this global effort for systematic profiling the fight against these devastating animal diseases.

Many of the countries currently affected by avian influenza have limited capacity to control these adaptable and highly contagious viruses. They lack effective diagnostic capability and surveillance systems that are essential for early warning and timely response. Veterinary infrastructures must be strengthened, via the provision of scientific and technical advice, equipment and supplies. FAO in the context of the GF-TADs initiative, continues to place priority on supporting the implementation of more effective systems for diagnosis, surveillance and control. Affected countries still need more help to actively search for infection and conduct detailed epidemiological analysis. This will help to ensure regional sharing of information and international reporting in a timely and transparent manner. Veterinary services also need access to better tools for diagnosis and disease control, including vaccines that are efficient, cost-effective and safe.

FAO, in collaboration with OIE, regional organizations and countries, recommends immediate implementation of the following sets of actions at a national, regional and global level.

At the national level, donor assistance is required to help governments:

- To strengthen the central animal health and Veterinary Public Health Services to better manage national surveillance systems, to improve early detection and response, define strategies, and monitor their implementation.
- To implement disease prevention and control programmes, including stamping out, biosecurity and vaccination as appropriate.

- To develop better tools (e.g., diagnostic methods, vaccines, antiviral agents) and analyse their effectiveness and costs, under local conditions, to help mitigate risk.

At the regional and global level, donor assistance is required to help:

- To support incipient regional diagnostic and surveillance networks, improve the quality of epidemiological information and facilitate transparency, sharing of information and early warning, leading to better prevention and control of avian influenza.
- To strengthen regional co-operation with the goal of helping countries harmonize surveillance and control strategies, realize economies of scale and scope, and establish sustainable funding and financial instruments for cross-border activities.

Controlling avian influenza in Viet Nam and in other parts of Asia to decrease the risk to human health and food production in Asia and worldwide is our common duty. The choice of Viet Nam for this Conference is relevant, because bird flu has severely affected this country and the Government has introduced substantial control measures. However, due to the widespread existence of virus in reservoir species, such as ducks, it is very difficult to eliminate it from the country. Viet Nam's surveillance and reporting systems have improved significantly and many lessons can be learned from this case. The control programme needs continuous support and more investment from the Government and the international community to prevent human infection, improve the capacity to find and control the disease and to support the use of vaccination, where appropriate.

FAO, in collaboration with OIE and other partners, has identified a global strategic approach that will require sustained donor support to countries in this region. Stopping the disease at source is a strategy that fully recognizes the importance of sound animal health and veterinary public health infrastructures in dealing with epidemic diseases and promoting food security. It is also the prerequisite for all efforts which countries will undertake in repositioning, rehabilitating or even restructuring their poultry sector. Such repositioning of the poultry sector relies on effective and efficient animal health management capabilities, whichever the role of this sector may be.

I encourage the international community to respond to the urgent requirements of the countries of the region for support in their efforts to get on top of this current serious situation; FAO stands ready to continue assisting in this process.

I look forward to three days of excellent scientific and technical discussion with a practical focus on the refinement of all measures required ranging from technical interventions through to economic and veterinary public health policies. Once again, thank you for your participation in the meeting – and for helping in the effort to control avian influenza at source.

Thank you,

**Closing speech by HE Mr. Cao Duc Phat,
Minister of Agriculture and Rural Development, Viet Nam**

Distinguished delegates, Ladies and gentlemen, I am very glad to observe that the second FAD/DIE Regional meeting has been successfully implemented. I would like to congratulate the organizing committee and all the participants for making this meeting a very meaningful and fruitful outcome. I also like once again to extend my sincerely thanks to FAD and DIE for selecting Viet Nam to host the meeting, giving us an opportunity to warmly welcome all of you in the country.

We find that the meeting has provided valuable information relating to HP AI prevention and control. It is recognized that a significant progress has been achieved in the fighting against HPAI epidemic, but the fighting is not finished yet and more determined efforts should be needed for the time to control. Therefore, the recommendations made in this meeting have a significant importance. I find these recommendations are applicable to the Vietnamese situations and many of them can be implemented right after the meeting.

With the success of this meeting, on behalf of the Government of Vietnam, I would like to extend my sincerely thanks to FAD, DIE and other international organizations for kind support and cooperation. I thank the organizing committee and its secretariat staff for their hard work. I wish to express my gratitude to Ho Chi Minh City People's Committee for kind support of the field trip. I extend my heart felt thanks to all the delegates of this meeting for cooperation and friendship.

We wish all of you a very success in your work.

Thank you and Good bye.

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G – List of Abbreviations

ACIAR	Australian Centre for International Agricultural Research
ADB	Asian Development Bank
AGA	Animal Production and Health Division (FAO)
AI	avian influenza
APEC	Asia-Pacific Economic Cooperation
APHIS	Animal and Plant Health Inspection Service (USA)
ASEAN	Association of Southeast Asian Nations
ASEAN +3	ASEAN + China, Japan and Republic of Korea
AusAID	Australian Government's Overseas Aid Program
BSL	Biosafety Level
CARE	Cooperative for Assistance and Relief Everywhere
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement
DIVA	differentiating infected from vaccinated
DLD	Department of Livestock Development (Thailand)
ECTAD	Emergency Centre for Control of Transboundary Animal Diseases
EU	European Union
FAO	Food and Agriculture Organization of The United Nations
GDP	Gross Domestic Product
GF-TADs	Joint FAO/OIE Global Framework for the Progressive Control of Transboundary Animal Diseases
GLEWS	Global Early Warning System
HPAI	Highly Pathogenic Avian Influenza
JICA	Japan International Cooperation Agency
LP	low pathogenic
MARD	Ministry of Agriculture and Rural Development (Viet Nam)
NGO	Non-governmental organization
OIE	World Organisation for Animal Health
POC	point of care
RT-PCR	Reverse Transcription-Polymerase Chain Reaction
SAARC	South Asian Association for Regional Cooperation
SARS	Severe Acute Respiratory Syndrome
SEAFMD	Southeast Asian Foot and Mouth Disease
TCP	Technical Cooperation Programme
UNDP	United Nations Development Programme
USDA	U.S. Department of Agriculture (USA)
VMEP	Vietnam Manufacturing and Export Processing Co., Ltd.
WHO	World Health Organization
WPRO	WHO Regional Office for the Western Pacific

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